

What is claimed is:

1. A Human Papillomavirus(HPV) genotyping kit which comprises:

(i) a DNA chip with probes that have nucleotide sequences complementary to DNA of HPV;

(ii) primers for amplifying DNA obtained from clinical samples by PCR; and,

(iii) means for labeling amplified DNA hybridized with the probes of the said DNA chip.

2. The HPV genotyping kit of claim 1 wherein the DNA chip further comprises position markers to locate probes.

3. The HPV genotyping kit of claim 1 wherein the primers are selected from the group consisting of GP5+ having Sequence ID No. 22, GP6+ having Sequence ID No. 23, GP5d+ having Sequence ID No. 24 and GP6d+ having Sequence ID No. 25.

4. The HPV genotyping kit of claim 1 wherein the means for labeling is a biotin-binding material.

5. The HPV genotyping kit of claim 4 wherein the biotin-binding material is streptavidin-R-phycoerythrin.

6. A process for preparing a DNA chip which comprises the steps of:

(i) preparing 5' terminal amine-linked DNA probes which have nucleotide sequences complementary to DNA of HPV;

(ii) affixing the DNA probes thus prepared to an aldehyde-derivatized surface of solid support; and

(iii) reducing excessive aldehydes not reacted with amine.

7. The process for preparing DNA chip of claim 6

403343 "422030

wherein the concentration of probes which react with aldehyde-derivatized solid surface ranges from 100 to 300pmol/ $\mu$ l.

5           8. The process for preparing DNA chip of claim 6 wherein affixing DNA probes to aldehyde-derivatized solid surface is performed via Schiff's base reaction between amine and aldehyde groups under an environment of 30 to 40°C and 70 to 100% humidity.

10           9. The process for preparing DNA chip of claim 6 wherein the reduction of aldehyde is performed by the aid of a reducing agent,  $\text{NaBH}_4$ .

15           10. A method for diagnosis of HPV infection using a HPV genotyping kit which comprises the steps of:

20           (i) amplifying DNA obtained from clinical samples by PCR with primers of HPV genotyping kit of claim 1 to give biotin-containing amplified DNA;

25           (ii) applying the amplified DNA thus obtained to DNA chip of the HPV genotyping kit to hybridize the amplified DNAs with DNA probes of the DNA chip; and,

30           (iii) detecting DNA bound on the surface of the DNA chip after labeling amplified DNA hybridized with the probes with means for labeling of the HPV genotyping kit.

35           11. The method for diagnosis of HPV infection using a HPV genotyping kit of claim 10 wherein the amplification of DNA obtained from clinical samples is performed by PCR using biotin-16-dUTP.

add  
Q1